Water Quantity Enhancement Activity – WQT07 – Regional weather networks for irrigation scheduling

Enhancement Description
Crop evapotranspiration (crop ET) information from a regional weather network is utilized as a part of the irrigation water management plan for irrigation scheduling. Water use is planned and adjustments in application rates and timing are made using the regional weather network data.

Land Use Applicability
Cropland, Pastureland

Benefits
The use of data from regional weather networks can improve a farmer's estimate of evapotranspiration from irrigated crops. This information combined with local rainfall data and monitoring of soil moisture can significantly improve the accuracy of irrigation timing and application rates. Benefits include reduced aquifer depletion, and reduced runoff and deep percolation, both of which reduce movement of agrichemicals from farm fields to aquifers, lakes, and streams.

Conditions Where Enhancement Applies
This enhancement applies to irrigated cropland or pastureland where regional weather data is not currently used to schedule irrigation events.

Criteria
This enhancement requires:
1. A subscription to a regional weather network that supplies crop ET values for irrigation scheduling.
2. The crop ET information from the network must be used as part of the irrigation water management plan to match water application rates and timing to the needs of the crops and soils.

Adoption Requirements
This enhancement is considered adopted when the applicant has a valid subscription to a regional weather service, has developed an irrigation water management plan based on the ET data from the regional weather network and has a record of irrigation events based on the ET data from the regional weather network.

Documentation Requirements
1. Documentation of subscription to a regional weather network.

2. An irrigation water management plan showing the use of the crop ET data from a weather network in irrigation scheduling.
3. A record of actual irrigation events based on the ET data from the weather network.

References

Elliott, R.L., K.G. Hubbard, M.D. Brusberg, M.J. Hattendorff, T.A. Howell, T.H. Marek, R.L. Snyder. 2000. The Role of Automated Weather Networks in Providing Evapotranspiration Estimates. Proceedings of the 4th Decennial National Irrigation Symposium. November 2000. pp 243-250. http://www.cprl.ars.usda.gov/wmru/pdfs/The%20role%20of%20automated%20weather%20networks%20in%20providing%20evapotr.pdf

Pierce, F.J. and T.V. Elliott. 2008. Regional and on-farm wireless sensor networks for agricultural systems in Eastern Washington. http://www.sciencedirect.com/science/article/pii/S0168169907001664